

In the Claims

1. (Currently amended) A method for image enhancement comprising:
 - receiving an input image;
 - matching regions of the input image to other available data;
 - forming a combined image by snapping pixels in the input image and pixels ~~associated with~~ in the matching regions to a grid corresponding to a resolution for the ~~combined~~ a set of training images, the combined image containing some pixels spaced more closely than the input image; and
 - generating an output image ~~based on~~ by applying a filter associated with the set of training images to the combined image, wherein the output image resolution is finer than the input image resolution.
2. (Currently amended) The method according to claim 1, wherein the output image resolution is less than or equal to the resolution of the ~~combined images~~ set of training images.
3. (Original) The method of claim 1 wherein generating an output image at a resolution finer than the input image resolution further comprises applying a least squares filter to generate each output pixel.
4. (Cancelled)
5. (Currently amended) The method according to claim 1, wherein generating further comprises applying ~~a~~ the filter to generate each output pixel.
6. (Previously amended) The method according to claim 5, wherein the filter comprises an optimal least squares filter for each output pixel.
7. (Original) The method of claim 6 wherein the optimal least squares filter for each output pixel is based on an irregular sample grid.

8. (Previously amended) The method of claim 1 wherein other available data changes over time.
9. (Original) The method of claim 1 wherein the image and other available data are video images in a home networking database.
10. (Original) The method of claim 1 further comprising the transfer of a payment before the output image is viewed by a user.
11. (Previously amended) A processing system comprising an electronic data processor, which, when executing a set of instructions, performs the method of claim 1.
12. (Previously amended) A machine-readable medium having stored thereon instructions, which, when executed, perform the method of claim 1.
13. (Original) The machine-readable medium of claim 12 wherein the input image is retrieved from and the output image is stored to a home networked database.
14. (Currently amended) An apparatus for image enhancement comprising:
 means for receiving an input image;
 means for matching regions of the input image to other available data;
 means for forming a combined image by snapping the pixels in the input image and pixels ~~associated with~~ in the matching regions to a grid corresponding to a resolution for ~~the combined~~ a set of training images, the combined image containing some pixels spaced more closely than the input image, and
 means for generating an output image by applying a filter associated with the set of training images to ~~based on~~ the combined image, wherein the output image resolution is finer than the input image resolution.

15. (Previously amended) The apparatus according to claim 14, wherein the output image resolution is less than or equal to the resolution of the combined image.

16. (Currently amended) The apparatus of claim 14 wherein means for generating an output image at a resolution finer than the input image resolution further comprises applying ~~a~~the filter to generate each output pixel.

17. (Cancelled)

18. (Previously amended) The apparatus according to claim 14, wherein means for generating further comprises solving a least squares problem to generate each output pixel.

19. (Previously amended) The apparatus according to claim 18, wherein a solution to the least squares problem comprises an optimal least squares filter for each output pixel.

20. (Original) The apparatus of claim 19 wherein the optimal least squares filter for each output pixel is based on an irregular sample grid.

21. (Previously amended) The apparatus of claim 14 wherein other available data changes over time.

22. (Original) The apparatus of claim 14 wherein the image and other available data are video images in a home networking database.

23. (Currently amended) A system comprising an electronic data processor, which, when executing a set of instructions, performs ~~the following~~ a method comprising:

retrieving a first video image at a first resolution;

forming a second video image at a second resolution by snapping pixels in the first video image and sample pixels ~~from~~ in an additional video image to a grid corresponding to a resolution for ~~the second video~~ a set of training images; and

generating a third video image based on by applying a filter associated with the set of training images to the second video image, wherein the third video image is at a third resolution that is finer than the first resolution.

24. (Previously amended) The system of claim 23 wherein the third resolution is less than or equal to the second resolution.

25. (Currently amended) The system of claim 23 wherein the first and second video images have missing pixels.

26. (Currently amended) The system of claim 23 wherein the second and third video images change over time.

27. (Original) The system of claim 23 wherein generating a third video image at a third resolution further comprises applying an optimal least squares filter for each output pixel.

28. (Currently amended) The system of claim 23 wherein the additional video images ~~are~~ is located on a home networking database.

29. (Currently amended) An apparatus comprising:

- means for receiving a input image having pixels at a first resolution;
- means for receiving other available data having pixels at a second resolution;
- means for forming a combined image by snapping the pixels at the first resolution and pixels at the second resolution to a grid corresponding to a resolution for ~~the combined~~ a set of training images, the combined image containing some pixels spaced more closely than the input image, and;
- means for generating an output image at a resolution finer than the input image resolution by applying a filter associated with the training images to the combined image pixels.

30. (Previously amended) The apparatus of claim 29 wherein the filter comprises a least squares filter.

31. (Original) The apparatus of claim 30 wherein the least squares filter is optimal for each output image pixel.

32. (Previously amended) The apparatus of claim 29 wherein applying a filter to the combined image pixels comprises applying the filter by a numerical tap method.

33. (Previously amended) The apparatus of claim 29 where the means for forming a combined image comprises means for motion compensation.

34. (Cancelled)

35. (Currently amended) An apparatus for image enhancement comprising:

a first device having an input and an output, the input coupled to receive a first image to be enhanced;

a second device having an input and an output, the input coupled to receive a second image;

a third device having a first input, a second input, and an output, the first input coupled to receive the first device output, and the second input coupled to receive the second device output, wherein the third device snaps pixels from the first and second images to a grid having a resolution for a set of training images, and applies a filter associated with the set of training images to the pixels, that is the grid resolution being finer than that of the first image; and

a fourth device having an input and an output, the input coupled to receive the third device output and the fourth device output coupled to send a third enhanced image, wherein the third enhanced image has a resolution that is less than or equal to the resolution of the grid.

36. (Original) The apparatus of claim 35 wherein the first device input and second device input are coupled to a home network.

37. (Original) The apparatus of claim 35 wherein the fourth device output is coupled to a home network.

38. (Original) The apparatus of claim 35 wherein the third device further comprises a least squares filtering device having an input and an output, the input coupled to receive an image, the output coupled to send a filtered image.